SCALABLE CROSS-FILE INLINING THROUGH LOCALITY-BASED TRANSFORMATION ORDERING

ABSTRACT OF THE DISCLOSURE

One embodiment disclosed relates to a method of compiling a computer program from a plurality of files of source code. An inline analysis determines which call sites in the plurality of files to make inline. An inline transformation performs the inlining within currently opened files. The transformer dynamically determines the order of inlines independent of the analyzer by taking into account the disk input-output pressure during compilation. The resulting inline order minimizes the input and output of files from and to disk respectively by considering the inline affinity between files and maintains the best run-time performance by preserving the dependences between call sites. During the inline transformation, a determination of which files to open and close is made in dependence on an affinity weighting between the files. The affinity and the dependence relationships are continuously updated in order to generate the best transformation ordering among call sites that ensures compile-time scalability and improved run-time performance.